



General

Guideline Title

Best evidence statement (BEST). Daily bathing of children in critical care settings with chlorhexidine gluconate.

Bibliographic Source(s)

Cincinnati Children's Hospital Medical Center. Best evidence statement (BEST). Daily bathing of children in critical care settings with chlorhexidine gluconate. Cincinnati (OH): Cincinnati Children's Hospital Medical Center; 2013 Jul 25. 6 p. [10 references]

Guideline Status

This is the current release of the guideline.

Recommendations

Major Recommendations

The strength of the recommendation (strongly recommended, recommended, or no recommendation) and the quality of the evidence (1a-5b) are defined at the end of the "Major Recommendations" field.

It is strongly recommended that patients receiving care in an inpatient critical care setting receive a daily bath using 2% chlorhexidine gluconate (CHG) to reduce the risk of bloodstream infection (Derde, Dautzenberg, & Bonten, 2012 [1a]; Karki & Cheng, 2012 [1b]; O'Horo et al., 2012 [1b]; Sievert, Armola, & Halm, 2011 [1b]; Milstone et al., 2013 [2a]; Climo et al., 2013 [2a]; Rupp et al., 2012 [3a]; Munoz-Price et al., 2012 [4b]; Lopez, 2011 [4b]).

Definitions:

Table of Evidence Levels

Quality Level	Definition
1a† or 1b†	Systematic review, meta-analysis, or meta-synthesis of multiple studies
2a or 2b	Best study design for domain
3a or 3b	Fair study design for domain
4a or 4b	Weak study design for domain
5a or 5b	General review, expert opinion, case report, consensus report, or guideline

Quality Level	Local Consensus Definition

†a = good quality study; b = lesser quality study

Table of Language and Definitions for Recommendation Strength

Language for Strength	Definition
It is strongly recommended that...	When the dimensions for judging the strength of the evidence are applied, there is high support that benefits clearly outweigh risks and burdens (or visa-versa for negative recommendations).
It is strongly recommended that... not...	
It is recommended that...	
It is recommended that... not...	When the dimensions for judging the strength of the evidence are applied, there is moderate support that benefits are closely balanced with risks and burdens.
There is insufficient evidence and a lack of consensus to make a recommendation...	

Note: See the original guideline document for the dimensions used for judging the strength of the recommendation.

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

- Any conditions requiring nursing care in inpatient critical care areas
- Bloodstream infection

Guideline Category

Prevention

Clinical Specialty

Critical Care

Nursing

Pediatrics

Intended Users

Advanced Practice Nurses

Hospitals

Nurses

Guideline Objective(s)

To evaluate, among children, if daily bathing with chlorhexidine gluconate (CHG) compared to daily bathing with soap and water affects rates of bloodstream infections during an inpatient hospital admission

Target Population

All pediatric patients two months of age or older receiving nursing care in inpatient critical care areas, including patients with intact skin

Note: The following patients are excluded from this guideline:

- Patients two months of age or younger
- Patients that have an indwelling epidural or lumbar drain
- Patients that have a known sensitivity to chlorhexidine gluconate (CHG)

Interventions and Practices Considered

Daily bathing with chlorhexidine gluconate (CHG)

Major Outcomes Considered

Rate of bloodstream infection

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

Search Strategy

- Databases: PubMed
- Search Terms: Chlorhexidine bathing in children, chlorhexidine bathing and infections, skin care, children
- Limits & Filters: All dates considered; English language
- Date Search Done: April 22, 2013

Number of Source Documents

Not stated

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Table of Evidence Levels

Quality Level	Definition
1a† or 1b†	Systematic review, meta-analysis, or meta-synthesis of multiple studies
2a or 2b	Best study design for domain
3a or 3b	Fair study design for domain
4a or 4b	Weak study design for domain
5a or 5b	General review, expert opinion, case report, consensus report, or guideline
5	Local Consensus

†a = good quality study; b = lesser quality study

Methods Used to Analyze the Evidence

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

Not stated

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

Not stated

Rating Scheme for the Strength of the Recommendations

Table of Language and Definitions for Recommendation Strength

Language for Strength	Definition
It is strongly recommended that... It is strongly recommended that... not...	When the dimensions for judging the strength of the evidence are applied, there is high support that benefits clearly outweigh risks and burdens (or visa-versa for negative recommendations).
It is recommended that... It is recommended that... not...	When the dimensions for judging the strength of the evidence are applied, there is moderate support that benefits are closely balanced with risks and burdens.

There is insufficient evidence and a lack of consensus to make a recommendation...	Definition
Language for Strength	

Note: See the original guideline document for the dimensions used for judging the strength of the recommendation.

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

Peer Review

Description of Method of Guideline Validation

This Best Evidence Statement (BEST) has been reviewed against quality criteria by two independent reviewers from the Cincinnati Children's Hospital Medical Center (CCHMC) Evidence Collaboration.

Evidence Supporting the Recommendations

References Supporting the Recommendations

Climo MW, Yokoe DS, Warren DK, Perl TM, Bolon M, Herwaldt LA, Weinstein RA, Sepkowitz KA, Jernigan JA, Sanogo K, Wong ES. Effect of daily chlorhexidine bathing on hospital-acquired infection. *N Engl J Med*. 2013 Feb 7;368(6):533-42. [PubMed](#)

Derde LP, Dautzenberg MJ, Bonten MJ. Chlorhexidine body washing to control antimicrobial-resistant bacteria in intensive care units: a systematic review. *Intensive Care Med*. 2012 Jun;38(6):931-9. [PubMed](#)

Karki S, Cheng AC. Impact of non-rinse skin cleansing with chlorhexidine gluconate on prevention of healthcare-associated infections and colonization with multi-resistant organisms: a systematic review. *J Hosp Infect*. 2012 Oct;82(2):71-84. [PubMed](#)

Lopez AC. A quality improvement program combining maximal barrier precaution compliance monitoring and daily chlorhexidine gluconate baths resulting in decreased central line bloodstream infections. *Dimens Crit Care Nurs*. 2011 Sep-Oct;30(5):293-8. [PubMed](#)

Milestone AM, Elward A, Song X, Zerr DM, Orscheln R, Speck K, Obeng D, Reich NG, Coffin SE, Perl TM, Pediatric SCRUB Trial Study Group. Daily chlorhexidine bathing to reduce bacteraemia in critically ill children: a multicentre, cluster-randomised, crossover trial. *Lancet*. 2013 Mar 30;381(9872):1099-106. [PubMed](#)

Munoz-Price LS, Dezfulian C, Wyckoff M, Lenchus JD, Rosasky M, Birnbach DJ, Arheart KL. Effectiveness of stepwise interventions targeted to decrease central catheter-associated bloodstream infections. *Crit Care Med*. 2012 May;40(5):1464-9. [PubMed](#)

O'Horo JC, Silva GL, Munoz-Price LS, Safdar N. The efficacy of daily bathing with chlorhexidine for reducing healthcare-associated bloodstream infections: a meta-analysis. *Infect Control Hosp Epidemiol*. 2012 Mar;33(3):257-67. [PubMed](#)

Rupp ME, Cavalieri RJ, Lyden E, Kucera J, Martin M, Fitzgerald T, Tyner K, Anderson JR, VanSchooneveld TC. Effect of hospital-wide

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Decrease in bloodstream infections among children in critical care settings

Potential Harms

Not stated

Qualifying Statements

Qualifying Statements

This Best Evidence Statement addresses only key points of care for the target population; it is not intended to be a comprehensive practice guideline. These recommendations result from review of literature and practices current at the time of their formulation. This Best Evidence Statement does not preclude using care modalities proven efficacious in studies published subsequent to the current revision of this document. This document is not intended to impose standards of care preventing selective variances from the recommendations to meet the specific and unique requirements of individual patients. Adherence to this Statement is voluntary. The clinician in light of the individual circumstances presented by the patient must make the ultimate judgment regarding the priority of any specific procedure.

Implementation of the Guideline

Description of Implementation Strategy

Applicability Issues

Adoption of the recommendation will involve approval through appropriate organizational structures that oversee practice changes. A chlorhexidine gluconate (CHG) bathing procedure would need to be developed to provide staff with instructions on CHG use. Recommendation adherence will require stocking of CHG-impregnated washcloths on the inpatient critical care units and education to nursing staff that provide care in the critical care units. Education to patients and families will also be required to support family centered care.

Implementation Tools

Audit Criteria/Indicators

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

IOM Domain

Effectiveness

Identifying Information and Availability

Bibliographic Source(s)

Cincinnati Children's Hospital Medical Center. Best evidence statement (BEST). Daily bathing of children in critical care settings with chlorhexidine gluconate. Cincinnati (OH): Cincinnati Children's Hospital Medical Center; 2013 Jul 25. 6 p. [10 references]

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2013 Jul 25

Guideline Developer(s)

Cincinnati Children's Hospital Medical Center - Hospital/Medical Center

Source(s) of Funding

Cincinnati Children's Hospital Medical Center

No external funding was received for development of this Best Evidence Statement (BEST).

Guideline Committee

Not stated

Composition of Group That Authored the Guideline

Team Leader/Author: Lucy Pui O'Quinn, BSN, RNII, CPN, Home Care (*NPIC Chair*)

Team Members/Co-Authors: Gina Geigle, BSN, RNII, CPN, Ambulatory (*NPIC Chair-Elect*); Rachel Baker, PhD, RN, CPN, Center for Professional Excellence and Business Integration: Evidence-based Practice; Sarah Baker, BSN, RNII, Critical Care; Eileen Beckman, BSN,

RNIII, Research Nursing; Laura Boesken, RN, Psychiatry; Mina Devine, RN, Emergency; Jackie Gruer, MSN, BSN, CNM, FACNM, RNII, Peri-op; Tami Jablonski, MSN, RN, CPN, Emergency, Clinical Manager; Carolon Jones, MSN, RN-BC, Center for Professional Excellence and Business Integration: Education Consultant; Fran Laube, BSN, BS, RN, MLIS, Research Nursing; Diane Lemen, RNII, CPN, Ambulatory; Mary Ellen Meier, MSN, RN, CPN, Center for Professional Excellence and Business Integration: Evidence-based; Jennifer Miller, BSN, RNII, CPN, Medical-Surgical; Edie Morris, PhD, RN, CNP, Center for Professional Excellence and Business Integration: Education Consultant; Marilyn Poynter, RNII, CPN, Home Care; Pat Schaffer, MSN, RN, Center for Professional Excellence and Business Integration: Clinical Program Manager; Heather Tubbs-Cooley, PhD, RN, Center for Professional Excellence and Business Integration: Assistant Professor; Linda Workman, PhD, RN, NEA-BC, Center for Professional Excellence and Business Integration: Vice President Patient Services

Financial Disclosures/Conflicts of Interest

Conflict of interest declaration forms are filed with the Cincinnati Children's Hospital Medical Center (CCHMC) Evidence-Based Decision Making (EBDM) group. No financial or intellectual conflicts of interest were found.

Guideline Status

This is the current release of the guideline.

Guideline Availability

Electronic copies: Available from the [Cincinnati Children's Hospital Medical Center Web site](#) .

Print copies: For information regarding the full-text guideline, print copies, or evidence-based practice support services contact the Cincinnati Children's Hospital Medical Center Health James M. Anderson Center for Health Systems Excellence at EBDMInfo@cchmc.org.

Availability of Companion Documents

The following are available:

- Judging the strength of a recommendation. Cincinnati (OH): Cincinnati Children's Hospital Medical Center; 2009 May 7. 1 p. Available from the [Cincinnati Children's Hospital Medical Center \(CCHMC\) Web site](#) .
- Grading a body of evidence to answer a clinical question. Cincinnati (OH): Cincinnati Children's Hospital Medical Center; 2009 May 7. 1 p. Available from the [CCHMC Web site](#).
- Table of evidence levels. Cincinnati (OH): Cincinnati Children's Hospital Medical Center; 2009 May 7. 1 p. Available from the [CCHMC Web site](#) .

Print copies: For information regarding the full-text guideline, print copies, or evidence-based practice support services contact the Cincinnati Children's Hospital Medical Center Health James M. Anderson Center for Health Systems Excellence at EBDMInfo@cchmc.org.

In addition, suggested process or outcome measures are available in the [original guideline document](#) .

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI Institute on December 2, 2013. This summary was updated by ECRI Institute on March 6, 2014 following the U.S. Food and Drug Administration advisory on Over-the-Counter Topical Antiseptic Products.

Copyright Statement

This NGC summary is based on the original full-text guideline, which is subject to the following copyright restrictions:

Copies of this Cincinnati Children's Hospital Medical Center (CCHMC) Best Evidence Statement (BEST) are available online and may be distributed by any organization for the global purpose of improving child health outcomes. Examples of approved uses of CCHMC's BEST include the following:

- Copies may be provided to anyone involved in the organization's process for developing and implementing evidence-based care guidelines.
- Hyperlinks to the CCHMC website may be placed on the organization's website.
- The BEST may be adopted or adapted for use within the organization, provided that CCHMC receives appropriate attribution on all written or electronic documents.
- Copies may be provided to patients and the clinicians who manage their care.

Notification of CCHMC at EBDMInfo@cchmc.org for any BEST adopted, adapted, implemented or hyperlinked to by a given organization and/or user, is appreciated.

Disclaimer

NGC Disclaimer

The National Guideline Clearinghouse^{â„¢} (NGC) does not develop, produce, approve, or endorse the guidelines represented on this site.

All guidelines summarized by NGC and hosted on our site are produced under the auspices of medical specialty societies, relevant professional associations, public or private organizations, other government agencies, health care organizations or plans, and similar entities.

Guidelines represented on the NGC Web site are submitted by guideline developers, and are screened solely to determine that they meet the NGC Inclusion Criteria which may be found at <http://www.guideline.gov/about/inclusion-criteria.aspx>.

NGC, AHRQ, and its contractor ECRI Institute make no warranties concerning the content or clinical efficacy or effectiveness of the clinical practice guidelines and related materials represented on this site. Moreover, the views and opinions of developers or authors of guidelines represented on this site do not necessarily state or reflect those of NGC, AHRQ, or its contractor ECRI Institute, and inclusion or hosting of guidelines in NGC may not be used for advertising or commercial endorsement purposes.

Readers with questions regarding guideline content are directed to contact the guideline developer.